

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) High-repetition mode-coupled ultra-short pulse laser system for generating pulses, according to the principle of cavity dumping, comprising:

- an amplifying laser medium;
- a laser resonator with at least one resonator mirror and at least one cavity dumping component;
- a saturable absorber mirror; and
- a pump source for pumping the laser medium;

wherein the cavity dumping component is an electro-optical modulator and the laser system is configured to generate femtosecond or picosecond pulses with a repetition rate of greater than 10 kHz and a peak pulse power greater than 100 kW.

2. (Previously Presented) The ultra-short pulse laser system according to Claim 1, wherein the electro-optical modulator is a BBO cell.

3. (Previously Presented) The ultra-short pulse laser system according to Claim 1, wherein the electro-optical modulator is an RTP cell.

4. (Previously Presented) The ultra-short pulse laser system according to Claim 1, further comprising at least one dispersive mirror for dispersion compensation.

5. (Previously Presented) The ultra-short pulse laser system according to Claim 4, wherein the laser system is formed so that, in the generation of picosecond pulses, the nonlinear phase is less than 100 mrad, the nonlinear phase being calculated per resonator cycle and per 1% modulation depth of the saturable absorber mirror.

6. (Previously Presented) The ultra-short pulse laser system according to Claim 1, wherein the laser system is formed so that, in the generation of femtosecond pulses, the r parameter is less than 1.

7. (Previously Presented) The ultra-short pulse laser system according to Claim 1 wherein the laser medium is ytterbium-doped glass or Nd:YVO₄.

8. (Previously Presented) The ultra-short pulse laser system according to Claim 1, wherein the laser medium comprises ytterbium-doped tungstates.

9. (Previously Presented) The ultra-short pulse laser system according to Claim 1, wherein the laser medium has a disc-like geometry.

10. (Previously Presented) The ultra-short pulse laser system according to Claim 1, wherein the pump source is formed and is arranged in such a way that a pump light spot having a ratio of length to width of at least 2:1 is formed, the pump light spot consisting of a single ray or the combination of a plurality of rays.

11. (Canceled)

12. (Previously Presented) The ultra-short pulse laser system according to Claim 1, wherein the pump source is a laser diode source.

13. (Previously Presented) The ultra-short pulse laser system according to Claim 3, wherein the RTP cell comprises a component for compensating a thermal drift.

14. (Previously Presented) The ultra-short pulse laser system according to Claim 4, wherein the at least one dispersive mirror for dispersion compensation is a Gires-Tournois interferometer.

15. (Previously Presented) The ultra-short pulse laser system according to Claim 5, wherein the nonlinear phase is less than 10 mrad.

16. (Previously Presented) The ultra-short pulse laser system according to Claim 6, wherein the r parameter is less than 0.25.

17. (Previously Presented) The ultra-short pulse laser system according to Claim 8, wherein the laser medium comprises Yb:KGW or Yb:KYW.

18. (Previously Presented) The ultra-short pulse laser system according to Claim 10, wherein the pump light spot consists of the combination of a plurality of rays, the rays being generated by laser diodes.

19. (Previously Presented) A method of processing a material, comprising:
providing a material to be processed by plasma generation, and
processing the material using the high-repetition mode-coupled ultra-short pulse laser system according to Claim 1.

20. (Previously Presented) The ultra-short pulse laser system according to Claim 1, wherein the repetition rate is greater than 100 kHz.

21. (New) The ultra-short pulse laser system according to Claim 1, wherein the laser system is configured to generate the pulses with a pulse energy above 100 nJ.

22. (New) The ultra-short pulse laser system according to Claim 1, wherein the laser system is configured to generate the pulses with a peak pulse power greater than 1 MW.

23. (New) The ultra-short pulse laser system according to Claim 1, wherein the laser system is configured to generate the pulses with a pulse energy above 400 nJ.